

# **Response of a two-level system to a single resonant laser pulse and nonresonant electromagnetic standing waves**

Garnaeva G., Nefediev L., Hakimzyanova E.

*Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia*

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## **Abstract**

This is a study of the responses of a two-level system to a sequence of short, spatially inhomogeneous laser pulses, one of which is resonant plus one or two which are nonresonant. It is found that at certain times the system responds, and that the conditions for formation of the responses depend on the region excited by the inhomogeneously broadened line of the resonant laser pulse and the parameters of the nonresonant pulses. It is proposed that responses of this type be used for determining the transverse relaxation time of the system without delay lines for the laser pulses. © 2013 Springer Science+Business Media New York.

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## **Keywords**

inhomogeneously broadened line, photon echo, spatially structured echo